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We, Engelbert **HEINZ**, a citizen of Germany, residing at Rote Erde 13, 32602 Vlotho, Germany, and Wilhelm **BRINGEWATT**, a citizen of Germany, residing at Fullenkamp 5, 32457 Porta Westfalica, Germany, have invented certain new and useful improvements in a

TROUGH MANGLE

of which the following is a specification.

We are claiming priority on Germany patent application number 10107120.5, filed on 14 February 2001 and German patent application number 10152641.5, filed on 16 October 2001.

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Trough mangle

Description

The invention relates to a trough mangle according to the preamble of claim 1, 8, 12, 16, 24 and 34.

The invention pertains to trough mangles, which are used in commercial laundries. Here, the mangling performance of such mangles is critical. High mangling outputs are achieved in known trough mangles by the latter being provided with two or an even larger number of mangle rolls located one after another. Each individual mangle roll is assigned a curved mangle trough. The pieces of laundry are moved along on the successive mangle troughs by the mangle rolls. In order to transfer the pieces of laundry from one mangle trough to the other, curved bridges are arranged between successive mangle troughs. In order to move the pieces of laundry along on the bridges, conveying means are provided, which are usually mangle belts, as they are known. The bridges and the mangle belts require extra expenditure during the production of such trough mangles. Furthermore, during the transfer of the pieces of laundry from one mangle trough to the other in the region of the bridges and the mangle belts, malfunctions may occur which, in the extreme case, lead to interruptions to the mangling operation. Finally, the mangle belts leave imprints on the laundry which, above all in the case of table linen, spoil the visual appearance.

On the basis of the above, the invention is based on the object of providing a trough mangle for commercial laundries in particular which has a high mangling performance but does not have the disadvantages cited at the beginning.

A trough mangle to achieve this object has the features of claim 1. The fact that the mangle roll has a diameter which is greater than 1600 mm, in particular in the range between 1600 and 2600 mm, preferably between 1800 and 2400 mm, permits the performance of a trough mangle to be increased without additional mangle rolls. Surprisingly, it has been shown that the mangling performance in the trough mangle according to the invention may be doubled without the roll diameter being twice as large. The mangle performance of a conventional trough mangle with two mangle rolls which, for example, have a diameter of 1300 mm, can be achieved in the case of the trough mangle according to the invention with a single mangle roll whose diameter is around 2000 mm. This is associated in particular with the fact that the resilient behavior of the mangle trough in the circumferential direction of the mangle roll is improved at greater roll diameters. In addition, the loss of smoothing path along the bridges between successive mangle rolls and the loss of evaporation performance are dispensed with. Increasing the mangle performance by means of a mangle roll of a greater diameter instead of the previous sequence of a plurality of mangle rolls also leads to bridges between successive mangle troughs and, in particular, mangle belts susceptible to faults no longer being required.

The trough mangle according to the invention can also have a plurality of successive mangle rolls and mangle troughs with diameters of more than 1600 mm, in order to increase the mangle performance further. Although the pieces of laundry then also have to be transferred from one mangle trough to the other, as a result of the larger mangle rolls, the number of mangle rolls and mangle troughs can be reduced, so that a lower number of transfer operations of the pieces of laundry to following mangle troughs is required, which also leads to a reduction in the expenditure on construction and the susceptibility of such a trough mangle to faults.

A further trough mangle for achieving the object cited at the beginning or for developing the trough mangle described previously has the features of claim 8. Accordingly, the end of the mangle roll which is associated with a drive (drive side) is carried by the drive. In particular, the drive side of the mangle roll is mounted in the drive unit. This renders a separate bearing for the mangle roll on the drive side superfluous. In addition, the structural dimensions are reduced, since as a result of the missing separate bearing on the drive side, the drive can be placed closer to the relevant end of the mangle roll.

The drive side of the mangle roll is preferably mounted on an output drive shaft of the drive, specifically in particular of a gearbox belonging to the latter. Because of its design, the output drive shaft of the gearbox has an internal mounting which is suitable to absorb the bearing forces of the mangle roll on the drive side.

The mangle roll is connected to the drive, in particular the gearbox, via a coupling flange, according to a preferred refinement of the invention. This separate coupling flange may be provided with a torque-transmitting means to be connected to the gearbox and can be flange-mounted on the relevant end of the mangle roll in a simple way by means of screws. This makes it possible to achieve a connection between the drive, in particular the gearbox, and the mangle roll which can be produced simply and easily replaced if required.

A further trough mangle for achieving the object cited at the beginning or for developing the trough mangle described previously has the features of claim 12. Accordingly, the gearbox of the drive is designed as an epicyclic gearbox. This makes it possible to reduce the

drive speed of a motor, in particular of an electric motor, to the relatively low rotational speed of the mangle roll which, in particular, has a large diameter. The epicyclic gearbox makes it possible to implement large step-down ratios with small structural dimensions. Furthermore, the output drive shaft of the epicyclic gearbox has a relatively high load bearing capacity, which permits the mangle roll on the drive side to be mounted directly on the output drive shaft of the epicyclic gearbox. Use is preferably made of an angled epicyclic gearbox. As a result, the electric motor serving to drive the mangle roll can be flange-mounted on the angled epicyclic gearbox with a longitudinal axis oriented at right angles to the longitudinal axis of the mangle roll. This leads to a particularly compact structural configuration of the drive side of the trough mangle. In addition, the gearbox may alternatively also be a cyclo gearbox or a harmonic drive gearbox.

A further solution of the object cited at the beginning, which can also be used to develop the trough mangle described previously, has the features of claim 16. Accordingly, the mangle roll is pivotably connected to a frame, in each case via a lever mechanism, both on the drive side and on the opposite side, namely the drive-free side. The lever mechanisms make it possible to connect even mangle rolls with large diameters and correspondingly high weights, but also with high contact forces on the mangle trough to the frame in a stable manner.

According to a preferred development of the invention, the lever mechanisms of the drive side and of the drive-free side are coupled to one another. This is preferably done by means of a compensating shaft. As a result, synchronization of the lever mechanisms associated with the opposite ends of the mangle roll is implemented, so that the mangle roll can be moved up

and down without the longitudinal mid-axis of the mangle roll changing its direction in the process.

In a preferred refinement of the trough mangle according to the invention, the compensating shaft is arranged on a pivot axis of such a lever that belongs to each lever mechanism and on which the mangle roll is mounted. As a result, the compensating shaft can be a constituent part of the pivotable mounting of the lever mechanisms, and at the same time, connect the levers in such a way that they are pivoted to the same extent, the compensating shaft being rotatable about its longitudinal mid-axis, forming the pivots for the levers. The compensating shaft is preferably dimensioned and constructed in such a way that it is substantially free of torsion.

According to a preferred development of the invention, the weight of the drive mounted on the lever mechanism on the drive side can be compensated for, to be specific in particular geometrically or mechanically and/or hydraulically or pneumatically. The mangle roll, whose diameter is relatively large, requires a powerful drive. This drive, to be specific in particular the angled epicyclic gearbox as well, has a weight which has a noticeable effect on the contact force of the mangle roll against the mangle trough. Since this weight, caused by the dead weight of the drive, is present only on the drive side, according to the invention, it is compensated for by the contact force of the mangle roll on the mangle trough, exerted by the lever mechanism on the drive-free side, being increased on the opposite side in accordance with the weight of the drive. This is done either geometrically or mechanically, by that lever of the lever drive on which a pressure-medium cylinder acts in order to press the mangle roll onto the mangle trough being correspondingly longer on the drive-free side than on the drive side. Alternatively, or additionally,

however, the compensation for the weight of the drive can also be carried out hydraulically or pneumatically, for example by the pressure-medium cylinder on the drive-free side having a greater piston area and, as a result, producing a contact force of the mangle roll against the mangle trough which is higher by the weight of the drive. However, the pressure-medium cylinders can also have different pressures applied to them. The piston areas of the pressure-medium cylinders can then also be equally large, that is to say identical pressure-medium cylinders can be used.

A further trough mangle for achieving the object cited at the beginning or else for developing the trough mangles described above has the features of claim 24. Accordingly, the resilient mangle trough is formed from trough sections connected to one another. The preferably equally large trough sections of the mangle trough surrounding the mangle trough in some areas, preferably in the area of a lower half, thus extend only over part of the circumference of the mangle roll which is surrounded by the entire mangle trough. In the longitudinal direction of the mangle roll, on the other hand, each trough section extends over the entire length of the mangle roll. Dividing the mangle trough in the circumferential direction in accordance with the invention does not have a noticeable influence on the stability of said trough, but a certain flexibility or resilience is maintained. In the longitudinal direction of the mangle roll, on the other hand, in which the mangle trough is preferably intended to be rigid, the rigidity is maintained, since in this direction the mangle trough is not divided.

Furthermore, provision is made to construct the individual trough sections intrinsically independently. This applies in particular with regard to their (heating) energy supply. Consequently, each trough section has its own connections for the feed and

discharge of the (heating) energy, for example, steam, hot oil or the like. As a result, in order to form the mangle trough, the trough sections merely have to be connected to one another.

According to a preferred refinement of the invention, the mangle trough is assembled from two equally large trough sections, each of which extends over approximately one quarter of the circumference of the mangle roll. The two trough sections are connected to each other in the middle (in relation to the circumferential direction of the mangle roll), that is to say approximately at the lower vertex of the semicircular mangle trough. This connection is provided by at least one welded seam running continuously in the longitudinal direction of the mangle trough. This welded seam is designed and dimensioned such that it has a section modulus which corresponds to the section modulus of the usually double-walled trough sections, so that the resilient behavior of the trough mangle assembled from the trough sections is approximately equally large in the area of the connection between the trough sections as in the adjacent areas of the mangle trough which is formed by the trough sections. This means that the mangle trough formed from the welded-together trough sections has an approximately equal section modulus over its entire course and, as a result, has an equal flexional behavior over the entire circumference of the mangle roll, as a result of which, when the mangle roll is pressed into the mangle trough, the mangle trough everywhere nestles uniformly against the mangle roll.

A further trough mangle for achieving the object cited at the beginning is distinguished by the features of claim 34. This may also be a development of the mangle troughs described previously. Accordingly, the mangle roll is provided with a wrapping, which has a thickness between 6 and 25 mm, in particular 12 to 20 mm. Such a

wrapping withstands the loadings which arise when a relatively large mangle roll is pressed against the mangle trough.

The wrapping is preferably formed in one layer, but this does not rule out the single-layer wrapping intrinsically being formed from a plurality of layers. The single-layer wrapping is closed endlessly in the circumferential direction of the mangle roll by a substantially transition-free or at least a virtually offset-free connecting seam. As a result, the wrapping of the mangle roll presses the pieces of laundry to be smoothed uniformly onto the smoothing surface of the mangle trough at all points on the circumference of the mangle roll. The wrapping formed in this way also withstands the high pressures which the mangle roll exerts on the mangle trough.

The wrapping is preferably formed from a felt or felt-like material. This has the requisite spring characteristics, because of the thickness specially selected according to the invention, as a result of which, in the wrapping of the trough mangle according to the invention, it is possible to dispense with the springs which are common in conventional trough mangles and which would not withstand the pressures, or not withstand them permanently, which arise in the case of trough mangles with large diameters of the mangle rolls. If appropriate, however, the (highly-loadable) springs that withstand the loadings which arise can be provided.

A preferred exemplary embodiment of the trough mangle according to the invention will be explained in more detail using the drawing, in which:

Fig. 1 shows a schematic side view of the trough mangle,

Fig. 2 shows a view of a non-driven side of the trough mangle,

Fig. 3 shows a longitudinal section (along a longitudinal mid-axis of the mangle roll) of the non-driven side of the trough mangle,

Fig. 4 shows a view of a drive side of the trough mangle,

Fig. 5 shows a view of the drive side with a drive,

Fig. 6 shows a vertical longitudinal section through the drive side,

Fig. 7 shows an enlarged detail of a cross section through the mangle trough in the area of the connection of the trough halves, and

Fig. 8 shows an enlarged detail of a cross section through the mangle roll with a wrapping.

The figures show a trough mangle for commercial laundries. The trough mangle has a cylindrical mangle roll 10, which can be driven so as to rotate about a longitudinal mid-axis 11. The mangle roll 10 shown here has, according to the invention, a diameter of about 2000 mm. The mangle roll 10 is associated with a flexible mangle trough 12. The mangle trough 12 surrounds approximately the lower half of the mangle roll 10, so that the mangle trough 12 is approximately semicircular in cross section.

At opposite longitudinal edges 13 and 14, the mangle trough 12 is preferably continuously mounted on a fixed frame 15 of the trough mangle. The right-hand longitudinal edge 13 of the mangle trough 12 in fig. 1 is associated with an inlet side 16 of the trough mangle and is firmly connected to the frame 15. The

opposite longitudinal edge 14 on an outlet side 17 is mounted on the frame 15 such that it can move on the frame 15, via a slightly skewed swinging support 18 which is preferably continuous in the longitudinal direction of the mangle trough 12. This mounting can be designed in the manner according to DE 197 02 644 A1, to whose entire content reference is made which reveals details of the mounting, in particular the swinging support 18.

In the area of the inlet side 16 and the outlet side 17, the mangle trough 12 can be provided with an extension pointing upward, which runs rectilinearly and is aligned somewhat obliquely, to be specific in such a way that the longitudinal edges 13 and 14 are at a distance from the mangle roll 10 in order to form a gap on the inlet side 16 and the outlet side 17. Such a gap primarily makes it easier to insert the pieces of laundry to be mangled between the mangle roll 10 and the mangle trough 12. The resilient mangle trough 12 nestles against the cylindrical surface of the mangle roll 10 in the semicircular area, so that the pieces of laundry are moved along through the trough mangle between the mangle roll 10 and an inner smoothing surface 19 of the mangle trough 12 by means of the mangle roll 10, driven in a clockwise direction (drive direction 20) in the exemplary embodiment shown. The gap shown in fig. 1 between the mangle trough 12 and the mangle roll 10 merely serves for illustrative purposes and explanatory purposes; in actual fact, it is not present during operation of the trough mangle.

The resilient mangle trough 12 is formed of two trough halves 21 and 22 in the trough mangle shown here. Each of the trough halves 21 and 22, running uninterruptedly over the entire longitudinal direction of the trough mangle, extends approximately over a quarter of the circumference of the cover of the mangle roll 10. The trough halves 21 and 22 are connected by a connecting

line 23 running through in the longitudinal direction of the mangle roll 10. The connecting line 23 extends on a vertical longitudinal mid-plane of the trough mangle lying on the longitudinal mid-axis 11 of the mangle roll 10. Apart from their mirror-image arrangement about the longitudinal mid-axis of the trough mangle, the two trough halves 21 and 22 are of substantially identical design.

Each trough half 21 and 22 is double-walled. For this purpose, each trough half 21 and 22 has a thicker inner trough plate 24 and a thinner outer trough plate 25. The inner sides of the inner trough plates 24 of each trough half 21 and 22, pointing toward the mangle roll 10, together form the smoothing surface 19 of the mangle trough 12. The trough plates 24 and 25 are formed from high-grade steel, in particular stainless steel. The equally thick inner trough plates 24 of the trough halves 21 and 22 are about 2 to 3½ times as thick as the likewise equally thick outer trough plates 25 of the trough halves 21 and 22. The thickness of the inner trough plates 24 lies in the range from 4 to 6 mm. Accordingly, the outer trough plates 25 are 1.2 to 3 mm thick.

To form the respective trough halves 21 and 22, the inner trough plate 24 and the outer trough plate 25 of the same are welded tightly all around at the edge. Furthermore, the areas of the trough halves 21 and 22 are provided with a preferably uniform grid of connecting points 26. In the areas of the connecting points 26, the inner trough plates 24 are additionally welded to the outer trough plates 25. Between the individual connecting points 26, the outer trough plates 25 are spaced apart from the inner trough plates 24, to be specific approximately by an amount which corresponds to the thickness of the outer trough plates 25, preferably being somewhat less. In those areas in which the trough plates 24 and 25 are spaced apart from

each other, flow ducts 27 to lead heating medium through, in particular steam or a heated liquid (hot oil) are formed within the respective trough half 21 and 22. Alternatively, it is conceivable to connect the trough plates 24 and 25 to each other by means of longitudinal seams or transverse seams in the area of the surface of the trough halves 21 and 22. The connection of the trough plates 24, 25 both along the circumference and at the connecting points 26 and longitudinal or transverse seams is carried out by means of welding, to be specific, preferably laser welding.

Each of the two trough halves 21 and 22 is designed independently with regard to the supply of energy. To this end, the trough half 21 has, at the upper edge region, pointing toward the inlet side 16, and the trough half 22 has, at the upper edge region pointing toward the outlet side 17, at least one, preferably a plurality of, steam connections. At the lower edge, close to the connecting line 23, each trough half 21 and 22 has connections 28 to discharge condensate. Each trough half 21 and 22 preferably has a plurality of separate connections 28. In the exemplary embodiment shown, each trough half 21 and 22 has five connections 28 to discharge condensate. If required, each trough half 21 and 22 can also have more than five connections 28. Likewise, less than five connections can be provided if appropriate.

At the connecting line 23 running continuously in the longitudinal direction of the trough mangle, edges of the trough halves 21 and 22 that are directed toward one another are welded to one another, to be specific by means of a longitudinal welded seam 29, which if required can be formed from a plurality of individual welded seams produced one after another. The longitudinal welded seam 29 is produced in accordance with a suitable, known arc welding method, under inert

gas. If appropriate, however, other welding methods can also be used for this purpose. In one embodiment of the invention, the longitudinal welded seam 29 extends over the entire thickness of the adjacent edges of the trough halves 21 and 22, specifically over the sum of the thickness of the inner trough plate 24 and of the outer trough plate 25, which, in the area of the connecting line 23 or longitudinal welded seam 29, rest continuously on each other in the longitudinal direction of the trough mangle, since they have already been welded to form the trough halves 21 and 22 by means of the welded seam surrounding each trough half 21 and 22 all around. Alternatively, it may be sufficient for the longitudinal welded seam 29 to extend only over the thickness of the inner trough plate 24 and not of the outer trough plate 25 as well. On the inner side of the mangle trough 12, the longitudinal welded seam 29 is subsequently machined, by means of grinding and/or polishing, for example, in such a way that a transition-free connection between the inner surface of the inner trough plates 24 of the individual trough halves 21 and 22 is produced, and therefore a continuous smoothing surface 19 also in the area of the connecting point 26.

At each of its two opposite ends, the mangle roll 10 is connected to the frame 15 via a lever mechanism 30, 31. By means of the lever mechanisms 30 and 31, the mangle roll 10 can be pressed into the mangle trough 12 and, if required, moved away from the same. One end of the mangle roll 10 is assigned a drive 32. This side of the mangle roll 10 will be referred to below as the drive side 33. The opposite end of the mangle roll 10, which is not assigned a drive, will be referred to as the non-driven side 34. This side is assigned the lever drive 31.

On the drive side 33, the mangle roll 10 is mounted directly on the drive 32 without a stub axle,

specifically on an output drive shaft 35 of a gearbox belonging to the drive. This gearbox is designed as an angled epicyclic gearbox 36. The angled epicyclic gearbox 36 has a transmission ratio (i) of 200 to 350, preferably about 300. As a result, in spite of the relatively large diameter of about 2000 mm, a circumferential speed is achieved with the mangle roll 10 which corresponds approximately to that which can be achieved in conventional trough mangles with a mangle roll of smaller diameter, namely at about 45 m/min. On the drive side 33, the mangle roll 10 is mounted on the output drive shaft 35 of the angled epicyclic gearbox 36, said shaft being formed as splined shaft. The angled epicyclic gearbox 36 in the exemplary embodiment shown is driven by an electric motor 37. The electric motor 37 is flange-mounted on the angled epicyclic gearbox 36 in such a way that the longitudinal mid-axis of the electric motor 37 intersects the longitudinal mid-axis 11 of the mangle roll 10 so as to be oriented approximately horizontally, to be specific at a right angle, by the longitudinal mid-axis of the electric motor 37 running transversely with respect to the longitudinal mid-axis 11 of the mangle roll 10.

On the drive side 33, a coupling flange 39 is assigned to an end wall 38 of the mangle roll 10. A flange plate 40 resting on the outside of the end 38 of the mangle roll 10 and belonging to the coupling flange 39 is screwed to the end wall 38. A splined profile 41 is machined into the flange plate 40 of the coupling flange 39. The splined profile 41 in the flange plate 40 is formed so as to correspond with the profile of the output drive shaft 35 of the angled epicyclic gearbox 36, likewise formed as a splined profile. By plugging the output drive shaft 35 of the angled epicyclic gearbox 36 into the splined profile of the plug-on sleeve 41, a torque-transmitting connection is made between the output drive shaft 35 of the angled epicyclic gearbox 36 and the mangle roll 10 on the

drive side 33. The plug-on sleeve 41, in particular the splined profile of the same, is arranged concentrically with the longitudinal mid-axis 11 of the mangle roll 10 as a result of which the latter can be driven by the drive 32 so as to rotate about the longitudinal mid-axis 11.

The lever mechanisms 30, 31 on opposite sides of the mangle roll 10 are designed equally, in conceptional terms, as parallelogram link mechanisms. However, the lever mechanisms 30, 31 in the exemplary embodiment shown have different dimensions.

The lever mechanism 30 on the drive side 33 has a (lower) double lever 42 and a single lever 43 located at a distance above it. The double lever 42 is mounted on the frame 15 at an outer end such that it can pivot about a pivot 44. The pivot 44 runs parallel to the longitudinal mid-axis 11 of the mangle roll 10. The pivot 44 is located beside and below the longitudinal mid-axis 11. At an end opposite the pivot 44, the double lever 42 is connected in an articulated manner to a piston-rod end 45 of a pneumatic cylinder 46. A piston underside of the pneumatic cylinder 46 is pivotably mounted on the frame 15. Between the pivot 44 at one end of the double lever 42 and the piston-rod end 45 at the other end of the double lever 42, the drive, specifically the angled epicyclic gearbox 36, is mounted on the double lever 42. Furthermore, the angled epicyclic gearbox 36 is mounted at a free end of the single lever 43. The opposite free end of the single lever 43 is mounted on the frame 15 such that it can pivot about a pivot 47. This pivot 47 is located laterally beside and above the longitudinal mid-axis 11 of the mangle roll 10, specifically, in the exemplary embodiment shown, approximately vertically above the pivot 44 for the double lever 42. By retracting and extending the pneumatic cylinder 46, the double lever 42 is pivoted about the pivot 44 and, at the same time,

the drive 32 with the drive side 33 of the mangle roll 10 fixed to it is raised or lowered. Accordingly, the single lever 43 also connected to the drive 32 is pivoted about the pivot 47, as a result of which the drive 32 and the drive side 33 of the mangle roll 10 are moved up and down on a virtually vertical path in order to move the mangle roll 10 into the mangle trough 12 and in order to move the mangle roll 10 out of the mangle trough 12.

The lever mechanism 31 on the non-driven side 34 of the mangle roll 10, designed in principle like the lever mechanism 30 on the drive side 33, also has a double lever 32, which can be pivoted about the pivot 44, and a single lever 49, which can be pivoted about the pivot 47. The double lever 48 can also be pivoted by a pneumatic cylinder 50. Between the opposite outer ends of the double lever 48 and at the free end of the single lever 49 a bearing 15 for the non-driven side 34 of the mangle roll 10 is attached. This bearing 51 is additionally connected to the free end of the single lever 49. In the bearing 51, a stub axle 53 that is firmly connected to the end wall 52 of the mangle roll 10, on the non-driven side 34 of the same is supported and, in the exemplary embodiment shown, is designed as a sleeve.

The lever mechanisms 30 and 31 are synchronized, to be specific by a compensating shaft 54 in the exemplary embodiment shown. The compensating shaft 54 is located on the pivot 44 for mounting the double levers 42 and 48 on the frame 15. The compensating shaft 54 therefore constitutes a torque-transmitting connection between the double levers 42 and 48 of the lever mechanisms 30 and 31 by transmitting the movement of one double lever 42 to the other double lever 48. In addition, the compensating shaft 54 also serves to implement the mounting of the double levers 42 and 48 on the frame 15. In order that the compensating shaft 54 ensures

virtually identically equal pivoting of the double levers 42 and 48, the compensating shaft 54 is designed to be substantially torsionally rigid. This is achieved, for example, by means of appropriate dimensioning of the compensating shaft 54.

The double levers 42 and 48 of the different lever mechanisms 30 and 31 are designed with different lengths. Accordingly, the double lever 42 on the drive side 33 is somewhat shorter. The distances of the attachment of the bearing 51 for mounting the mangle roll 10 on the non-driven side 34 and of the angled epicyclic gearbox 36 for mounting the mangle roll 10 on the drive side 33 to the pivot 44 and to the compensating shaft 54 are equal. On the other hand, the distances of those points at which the pneumatic cylinders 46 and 50 are attached to the free ends of the double levers 42 and 48 to the pivot 44 or compensating shaft 54 are of different lengths. As a result, the pneumatic cylinder 50 on the non-driven side 34 is attached to the double lever 48 at a greater distance from the pivot 44 than the pneumatic cylinder 46 on the drive side 33. The different lengths of the double levers 42 and 48 lead to the forces with which the mangle roll 10 is pressed into the mangle trough 12 being substantially equal on both sides of the mangle roll 10 although on the drive side 33, because of the weight of the drive 32, a considerable proportion of the pressing force of the mangle roll 10 into the mangle trough 12 is produced by the weight of said drive 32. Since, on the non-driven side 34, the weight component of the drive 32 is missing, a greater pressing force has to be exerted here by the pneumatic cylinder 50, which is implemented by means of the longer double lever 48. The length ratios of the double levers 42 and 48 are coordinated with each other in such a way that the longer double lever 48 on the non-driven side 34 compensates for the weight, which is missing here, of the drive 32 on the drive side 33,

specifically exerting a correspondingly higher force on the bearing 51 of the mangle roll 10 on the non-driven side 34.

Alternatively, it is conceivable to make the lever ratios of the lever mechanisms 30 and 31 different in another way, in order that the lever drive 30 on the drive side 33 presses the mangle roll 10 into the mangle trough 12 with lower forces than the lever mechanism 31 on the non-driven side 34.

It is also possible to design the double levers 42 and 48 to be equally long and, instead, to provide on the non-driven side 34 a pneumatic cylinder 50 with a greater piston area required to compensate for the weight of the drive 32.

As a result of the diameter of the mangle roll 10 of about 2000 mm, an elastic wrapping surrounding the mangle roll 10 is primarily more highly loaded in the circumferential direction than in the case of conventional trough mangles with smaller diameters of the mangle roll. For this reason, according to the invention a special wrapping is provided. This is formed of a single-layer felt 55 with a thickness of preferably 7 to 18 mm. The felt 55 per se can comprise a plurality of layers which are permanently connected to one another and which can have identical or else different characteristics. A material web of the felt 55 formed in this way is then laid completely once around the mangle roll 10, and the transverse edges of the material web are connected without offset at a connecting point 56, in particular spliced. To this end, the adjacent transverse edges of the felt 55, to be put together at the connecting point 56, are chamfered as viewed in the cross-sectional direction of the mangle roll 10 in order to form chamfered connecting faces 57. As a result of this chamfering, the wrapping at the connecting point 56 is exactly as

thick as the felt 55 outside the connecting point 56. The connecting faces 57 of opposite end areas of the felt 55 for forming the wrapping are connected to each other at the connecting point 56, to be specific preferably by means of adhesive bonding or the like. Alternatively or additionally, the connection can also be made by means of sewing in the area of the connecting point 56.